These and other objects, features and advantages of the present invention will become more apparent in view of the following detailed description of the preferred embodiments in conjunction with accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a diagram showing the structure of a mobile communication network.

FIG. **2** is a diagram illustrating a packet data communication system using reservation based access control.

FIG. **3** is a diagram showing a first example of the structure of a base station embodying transmission power control of the-present invention.

FIG. **4** is a diagram showing the structure of an answer packet.

FIG. **5** is a diagram showing the structure of a unit for measuring a received level of a traffic channel.

FIG. **6** is a diagram showing the structure of a unit for generating a transmission power control signal of a traffic channel.

FIG. **7** is a diagram illustrating insertion of a transmission power control signal between answer packets.

FIG. **8** is a diagram showing a first example of the structure of a mobile terminal embodying the transmission power control of the invention.

FIG. **9** is a diagram illustrating a transmission power control state of an uplink traffic channel realized by the operations of a base station and mobile terminals according to the present invention.

FIG. **10** is a diagram showing a second example of the structure of a base station embodying the transmission power control of the invention.

FIG. **11** is a diagram showing a second example of the structure of a mobile terminal embodying the transmission power control of the invention.

FIG. **12** is a diagram illustrating an uplink traffic channel transmission power control method of a conventional portable telephone system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** shows the structure of a mobile communication network applied to the present invention. A public switched telephone network (PSTN) **200** is connected with a fixed terminal **201** such as a telephone and a mobile communication network **202**. The mobile communication network **202** is connected with a plurality of base stations **203***a*, **203***b*, ... Each base station **203** communicates with mobile terminals **204***a*, **204***b*, . . . in its service area (cell) via radio channels **205**.

In the following, the invention will be detailed by applying it to a CDMA packet communication system using reservation based access control shown in FIG. **2**.

In the CDMA packet communication system using reservation based access control, channels shared by a plurality of mobile terminals in the service area include a reservation channel **1** (uplink channel), an answer channel **2** (downlink channel) and a pilot channel **8** (downlink channel). The pilot channel **8** is a channel used for transmitting a pilot signal **9** as a reference signal to each mobile terminal.

A mobile terminal having a data transmission request transmits a reservation packet **4** at a desired timing by using the reservation channel **1**. The base station performs scheduling of received reservation packets. The base station selects (schedules) a channel and a time slot (a time slot **7** is defined in an uplink traffic channel **3**) via which each mobile terminal can transmit data, from a plurality of uplink traffic channels **3**. In order to transmit the scheduling results to each mobile terminal, the base station generates an answer packet **5** corresponding to the reservation packet. The generated answer packet **5** is transmitted to the corresponding mobile terminal in the area by using the answer channel **2**. The mobile terminal identifies the answer packet destined to it from received answer packets **5**, and transmits a data packet by using the uplink traffic channel and time slot designated by the base station.

In the example shown in FIG. **2**, the mobile terminal transmitted the reservation packet **4***a* receives the answer packet **5***a* transmitted to it, selectively from answer packets transmitted from the base station, and transmits a data packet **6***a* by using the time slot **7***a* of the traffic channel **3***a* designated in the received answer packet **5***a*.

With reference to FIGS. **3** to **9**, a first embodiment will be described which realizes a method of controlling the transmission power of an uplink channel.

FIG. **3** shows an example of the structure of a base station. A signal received by an antenna **30** is input via a circulator **31** to a reception radio module **32**. The reception radio module **32** performs a high/middle frequency reception process to demodulate a signal in a carrier frequency band into a baseband signal. Since the received signal has a plurality of multiplexed channel signals, it is input to an acquisition/despread circuit (**33**, **42***a*–**42***n*) to be spectrum despread.

A reservation channel output from the reservation channel acquisition/despread circuit **33** is supplied via a signal line **50** to a detector **35** whereat it is detected and then supplied to a decoder **36** whereat an error correction decode process such as Viterbi decoding is performed. A packet interpretation unit **37** interprets the decoded reservation packet to obtain a terminal ID of the mobile terminal which transmitted the reservation packet and the reservation contents such as transmission data, and transfers the reservation contents to an answer packet generator unit **38**.

The reservation packet is also input via a signal line **51** to a unit **39** for measuring the received level of the reservation channel. This unit **39** measures a signal to noise power ratio (SN ratio) of the reservation packet. The measurement result of the received level is compared with a reference reception level by an initial transmission power control signal generator **40**. In accordance with this comparison result, a transmission power control signal is generated which designates a transmission power when the mobile terminal starts transmitting a data packet. The generated transmission power control signal is input to an answer packet generator **38**.

In accordance with the reservation contents interpreted by the packet interpretation unit **37** and the transmission power control signal generated by the initial transmission power control signal generator **40**, the answer packet generator **38** generates an answer packet. An example of the structure of an answer packet is shown in FIG. **4**. A mobile terminal ID is an ID of a mobile terminal which transmitted a reservation packet. This ID is used as a destination of the answer packet. An allocated channel **101** and an allocated slot number **102** indicate an uplink traffic channel and a time slot to be used by the mobile terminal and are designated by the answer packet generator **38**. An initial transmission power **103** indicates a transmission power when the mobile terminal starts transmitting data and is designated by the transmission